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Abstract

PURPOSE:To form a uniform layer controlled in an atomic layer order easily on a substrate having a large area by setting at least one kind of concentration of a raw material gas within a range, in which the rate of change of a growth rate in the relationship of the growth rate of the layer to one kind of raw- material gas concentration is not increased substantially, and supplying the raw material gas.
CONSTITUTION:The inside of a reaction tube 1 is exhausted by a rotary pump 42. A turbo-molecular pump 3 and a rotary pump 41 exhaust a load locking mechanism for sending a substrate crystal 2 into or out from the inside of the reaction tube 1. A numeral 6 represents a heater for heating the substrate crystal 2. A manifold 7 is connected at one end of the reaction tube 1, and flow-path changeover valves S1, S2, S3 are bonded with each branch section. A growth rate increases in approximately proportional to TEG concentration within a range, in which the concentration of TEG is low, the growth rate is not proportional to TEG concentration within a range, in which TEG concentration is higher, and the growth rate is kept approximately constant when TEG concentration exceeds 20X10<-4> in terms of molar fraction.